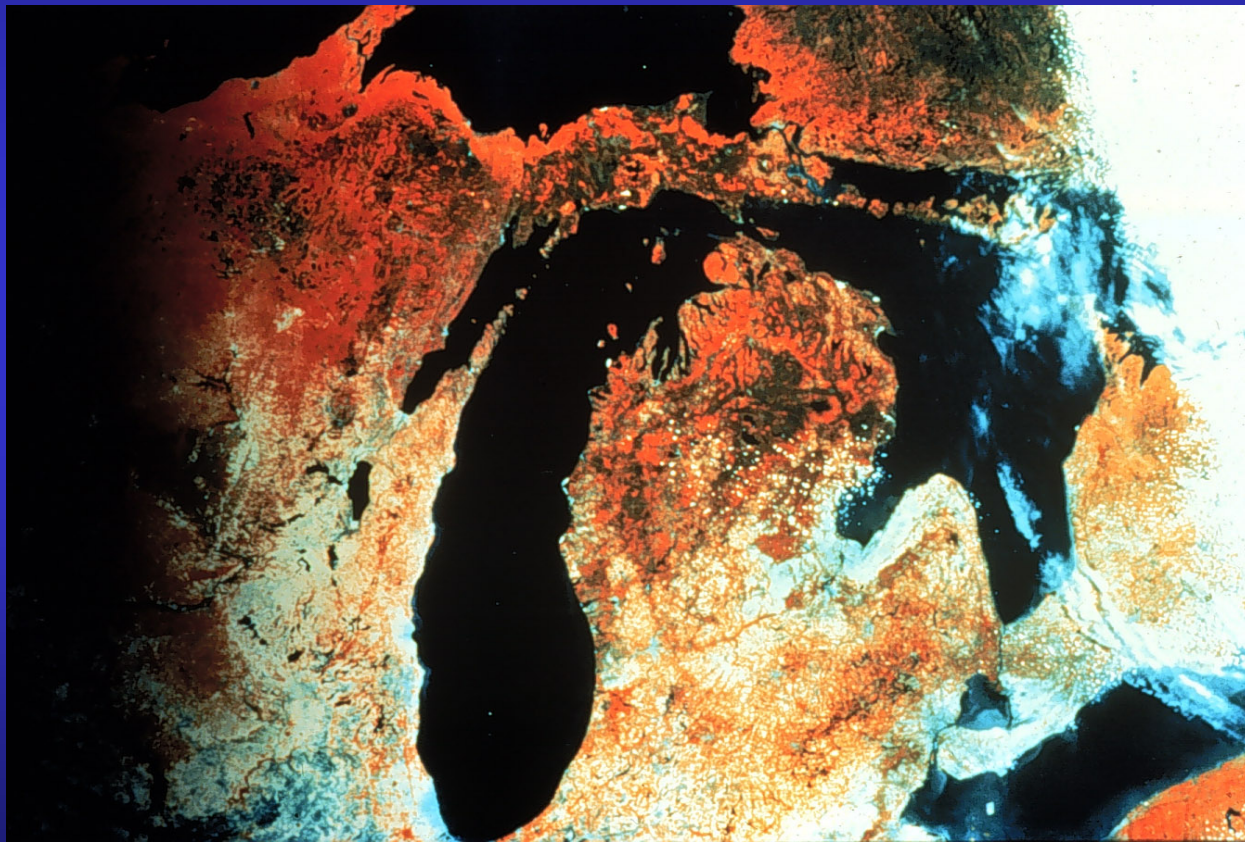


Physical Habitat of the Lake Huron Watershed

- By Dennis Albert, Program Ecologist

Forested Ecosystems characterize Lake Huron Basin



Michigan Natural Features Inventory

Major Physical Factors: Regionalization

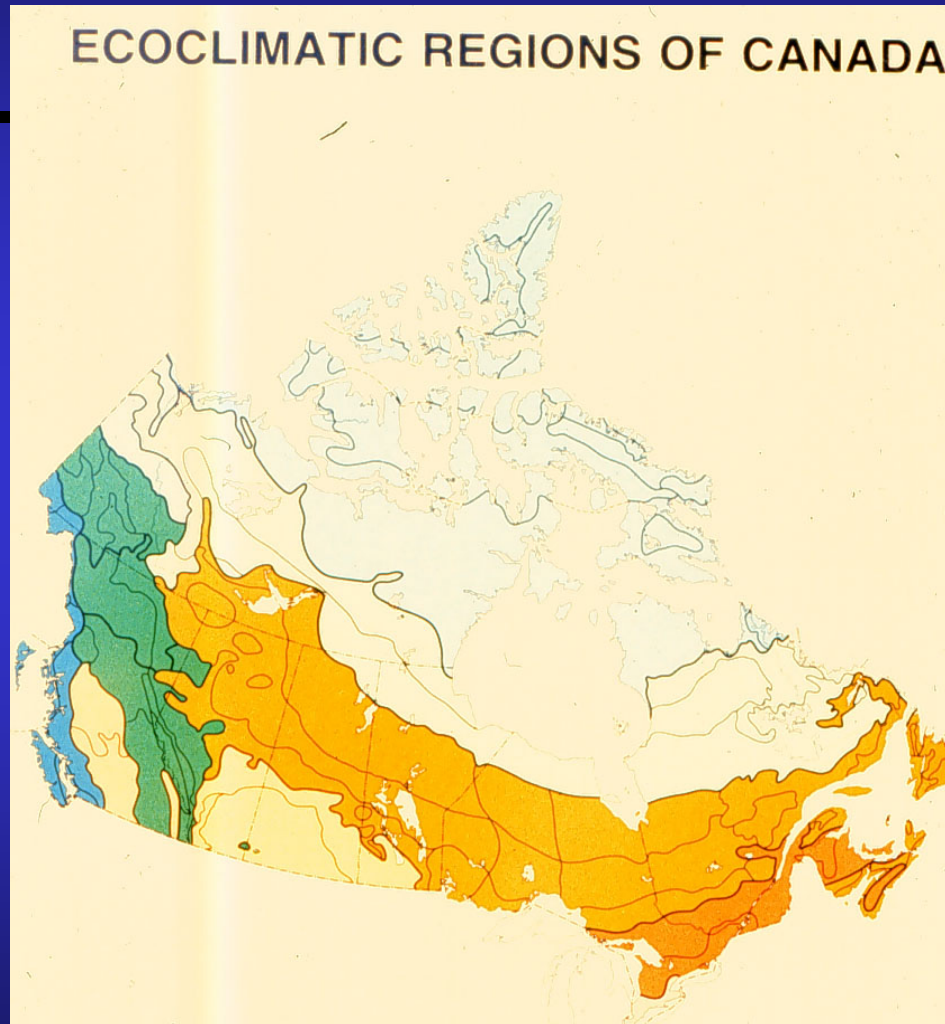
- Climate
- Bedrock Geology
- Glacial Geology

Ecoregions of MI, MN, WI



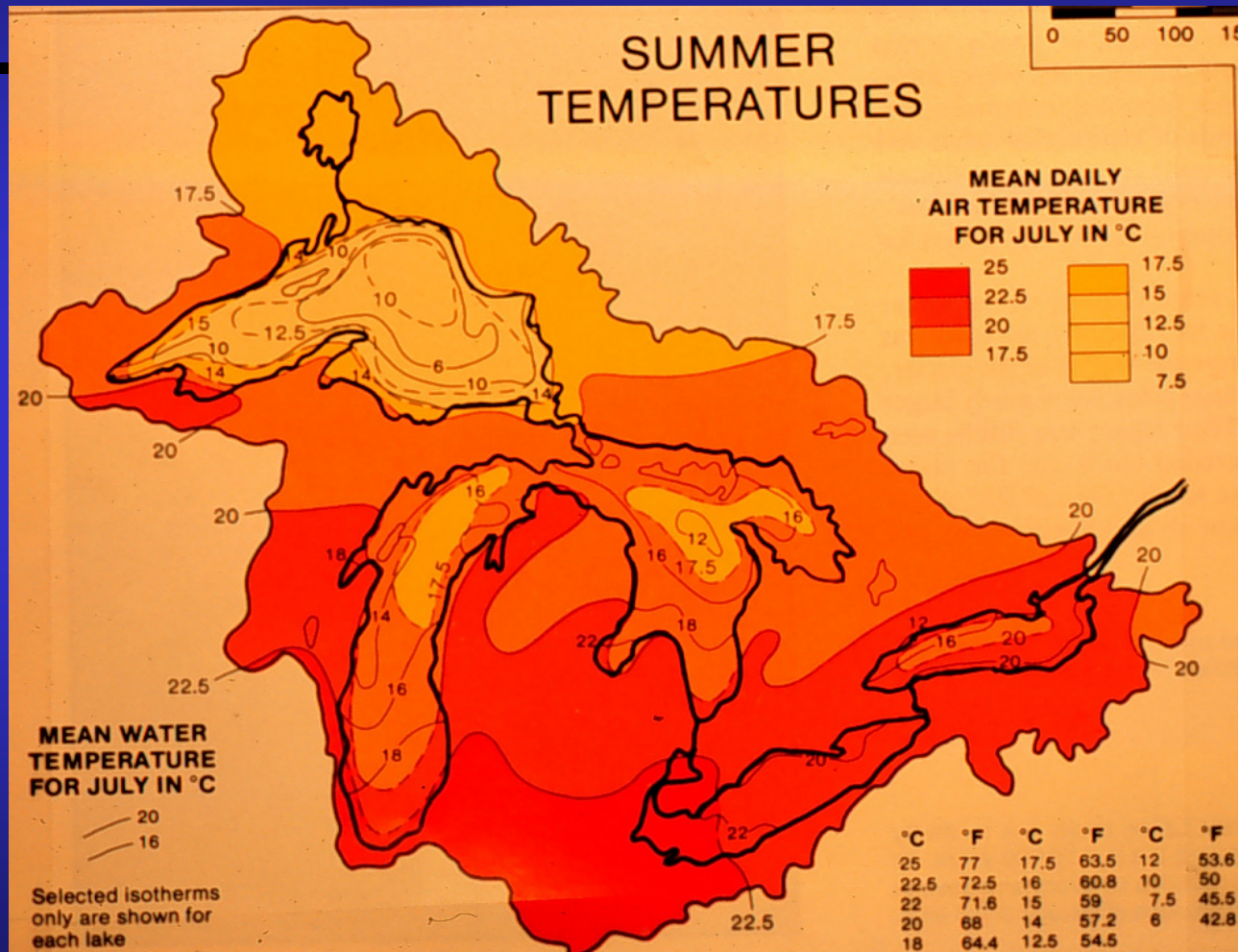
Michigan Natural Features Inventory

Ecoregions of Canada



Michigan Natural Features Inventory

Climate: temperature gradient



Climate: Vegetation relationship

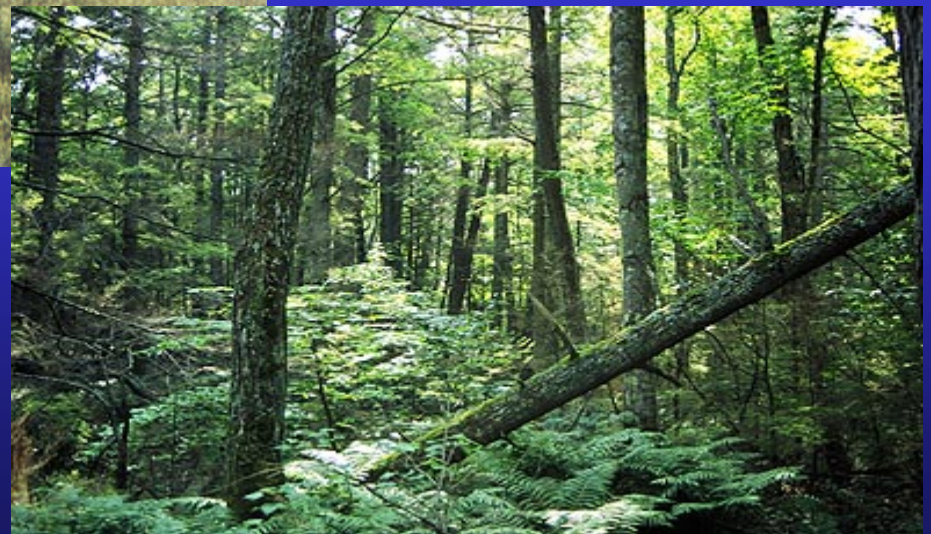
- Northern MI: northern forest types
- Southern MI: southern forest, savanna, and prairie (Carolinian biota)

Vegetation of Michigan circa 1800

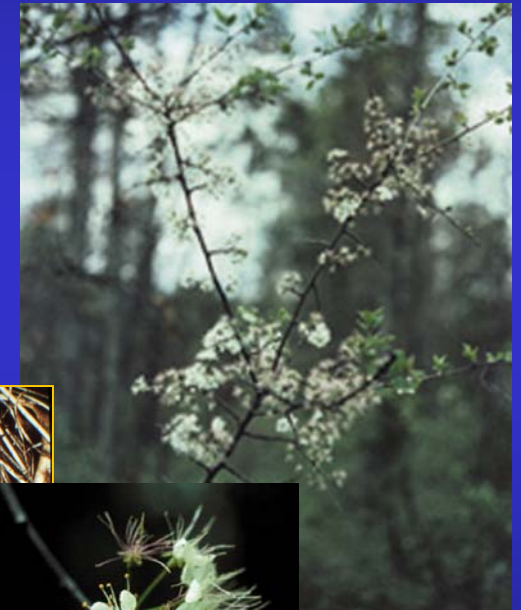


Northern Forests

- Boreal Forest
- Jack Pine barrens
- Northern Hardwoods



Pine barrens - northern Lower Michigan



Michigan Natural Features Inventory

Mesic Northern Hardwoods: habitat for songbirds and raptors



Michigan Natural Features Inventory

Red-shouldered hawk (*Buteo lineatus*)



Photo by Christopher Crowley

- state threatened

Southern Oak Savannas and Forests



Michigan Natural Features Inventory

Southern Prairies



Michigan Natural Features Inventory

Forest change: northern MI

Michigan's northern L.P.: Acreage change in selected land cover types since the 1840s.

(sources: Comer et.al. 1995; Leatherberry & Spencer 1993)

COVER TYPE	PRESETTLEMENT (acres)	% of total area	CURRENT (acres)	% of total area
total forest area	10,569,000	95	6,998,000	61
northern hardwoods	2,363,600	21	2,072,600	18
hemlock-associated forest	1,383,600	12	?	?
jack pine (red pine)	874,000	8	520,600	5
red pine-white pine	1,035,400	9	687,100	6
pine (oak) barren	100,000	1	?	?
pine-oak forest	280,100	2	?	?
oak forest	1,000	<1	1,140,900	10
aspen-birch forest	132,800	1	1,502,600	13

Forest Change: southern MI

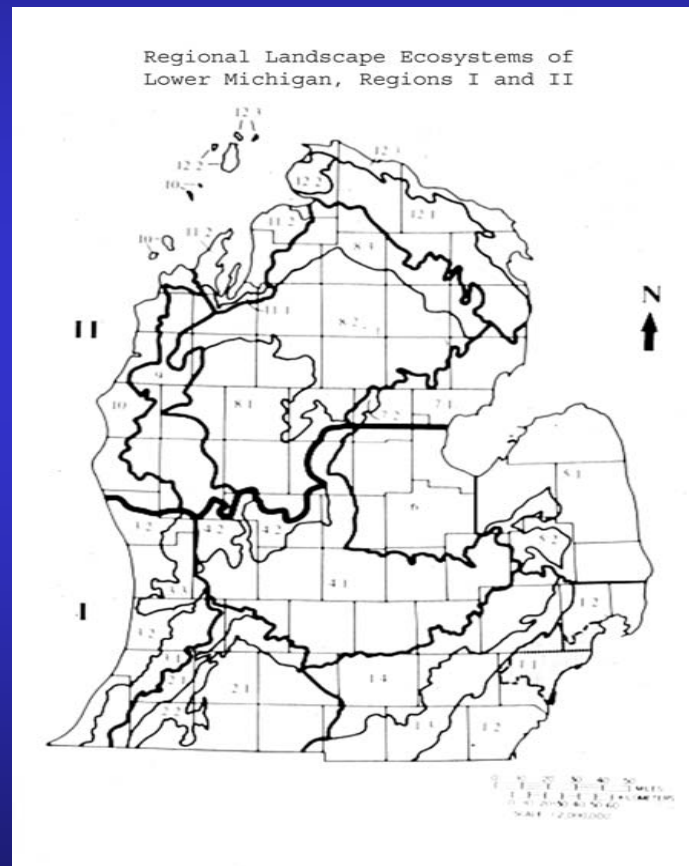
Michigan's southern L.P.: Acreage change in selected land cover types since the 1830s.

(sources: Comer et.al. 1995; Leatherberry & Spencer 1993)

COVER TYPE	PRESETTLEMENT (acres)	% of total area	CURRENT (acres)	% of total area
upland forest total	10,081,000	65	3,220,000	21
beech-sugar maple	6,733,000	43	1,358,600	9
oak-hickory	2,303,135	15	774,000	5
pine-oak forest	273,000	2	43,800	<1
oak (pine) savanna	1,821,000	12	4,000*	<1
grassland	60,500	<1	1,200*	<1
wetland total	3,217,000	21	1,695,000	11
hardwood swamp	450,000	3	941,000	6
tamarack swamp	488,000	3	7,800	<1
wet prairie	381,000	2	1,500*	<1

* estimate of Michigan Natural Features Inventory

Ecoregions of Michigan

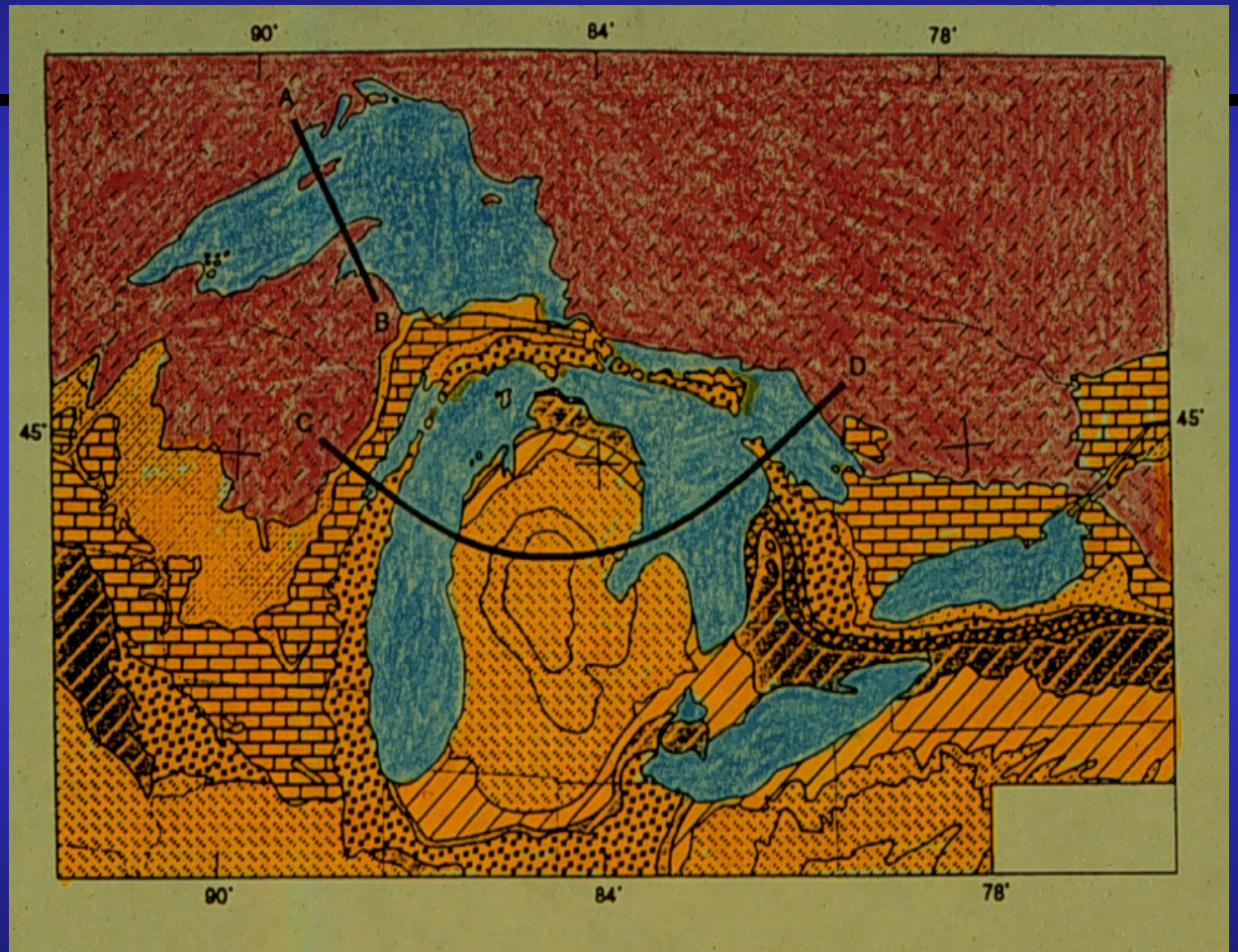


Michigan Natural Features Inventory

Bedrock Geology: Michigan Basin

Granitic >

Sedimentary >



Michigan Natural Features Inventory

Bedrock Geology

- Limestone and dolomite
- Sandstone



Karst: sinkholes



Michigan Natural Features Inventory

Karst: swallows



Michigan Natural Features Inventory

Hearts-tongue and Walking Ferns on forested limestone cliffs



Alvar with old-growth cedar, Bruce Peninsula, Ontario



Michigan Natural Features Inventory

Dwarf lake iris (*Iris lacustris*)



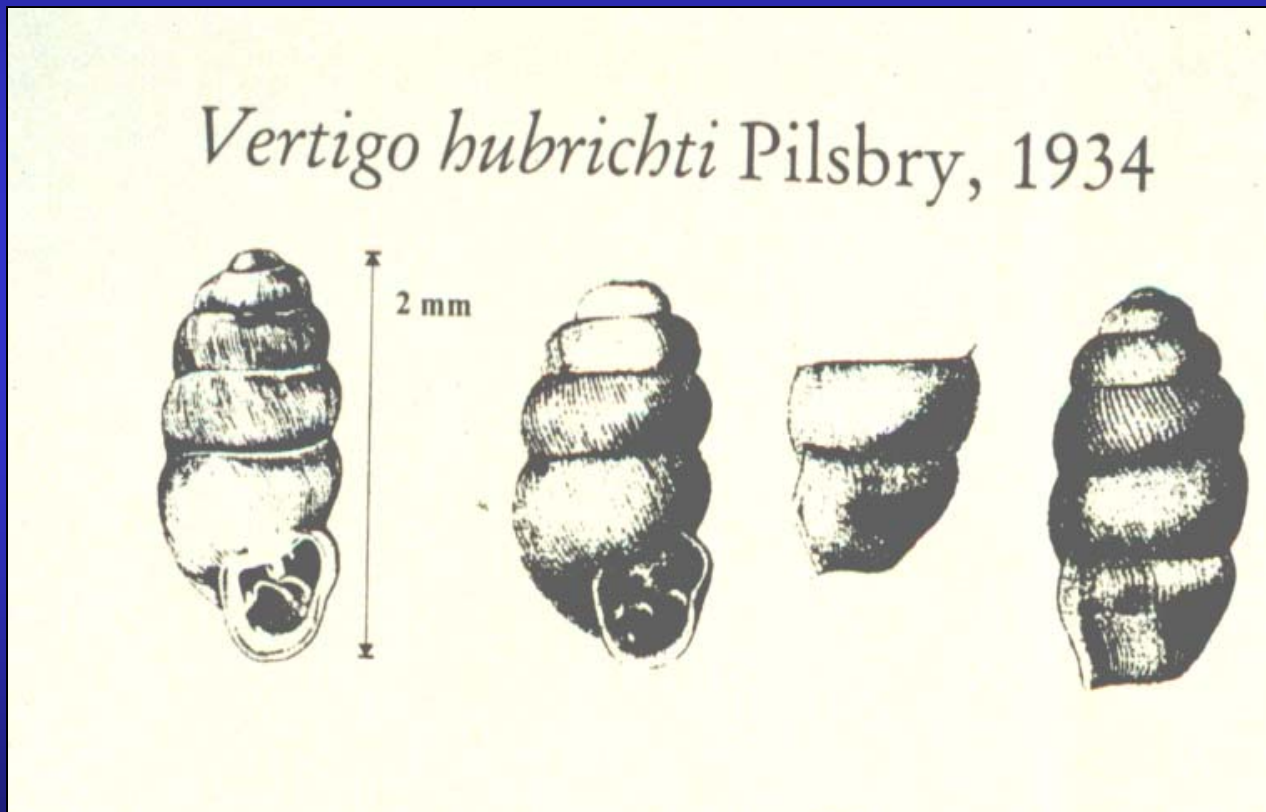
- Great Lakes endemic
- Michigan state wildflower



Dwarf lake iris



Land snails

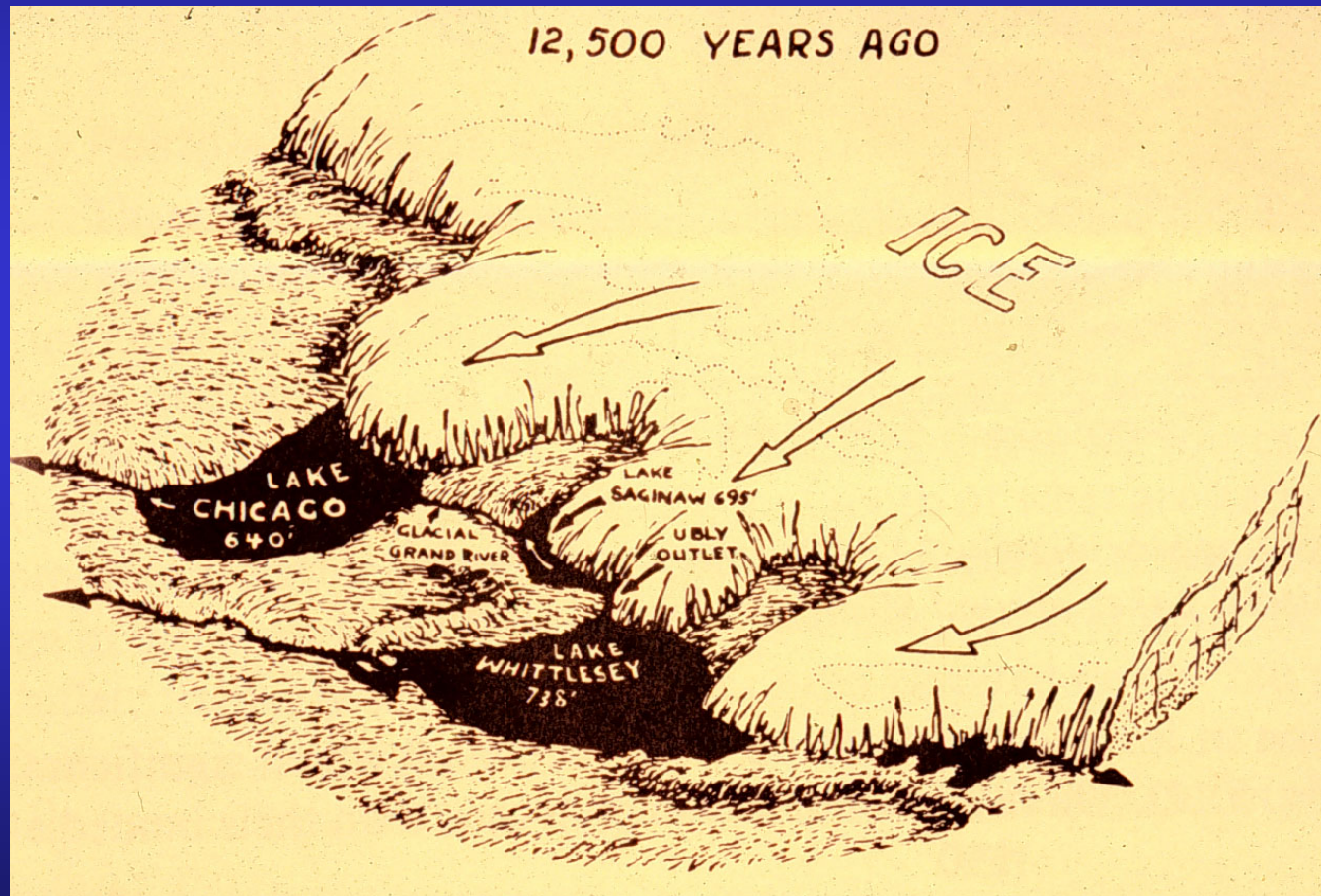


Bedrock: Sandstone cliffs



Michigan Natural Features Inventory

Glacial geology: entire region glaciated



Glacial Geology



Michigan Natural Features Inventory

Postglacial landforms along Great Lakes shorelines

- dunes
- dune and swale
- interdunal wetlands
- bays: protected coastal marshes

Great Lakes dunes



Michigan Natural Features Inventory

Lake Huron locust (*Trimerotropis huroniana*)



T; S2S3; G2G3

Lake Huron tansy (*Tanacetum huronense*)



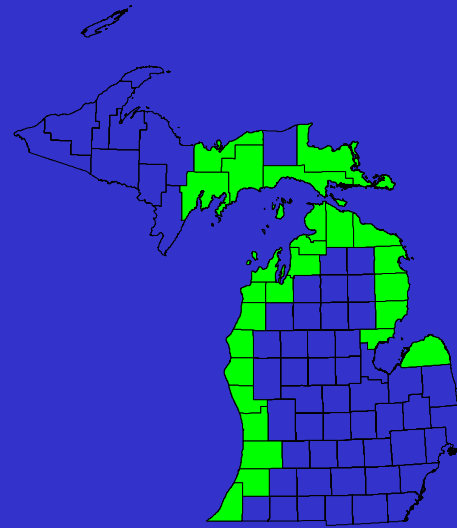
Photo by: Gary Reese

- almost endemic

Pitcher's thistle (*Cirsium pitcheri*)

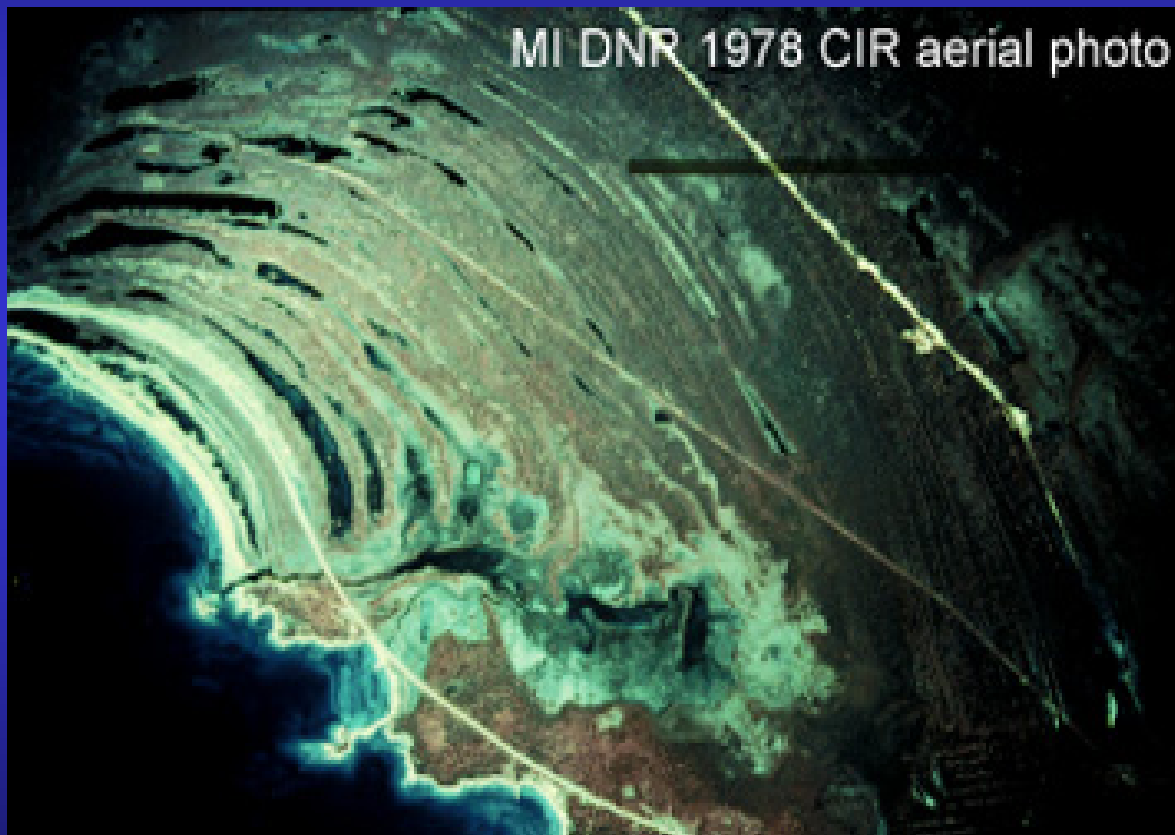


- Great Lakes endemic



Michigan Natural Features Inventory

Dune and swale complex



Interdunal wetlands



Photo by Patrick J. Comer.

Marly interdunal wetlands



Hine's emerald (*Somatochlora hineana*)



Photo by William A. Smith.

E; LE

S1; G2G3

Houghton's goldenrod (*Solidago houghtonii*)

- Great Lakes endemic
- interdunal wetlands



Michigan Natural Features Inventory

Great Lakes Marsh



Michigan Natural Features Inventory

eastern fox snake (*Elaphe vulpina gloydi*)



T; S2; G5T3

Lakeplain prairie

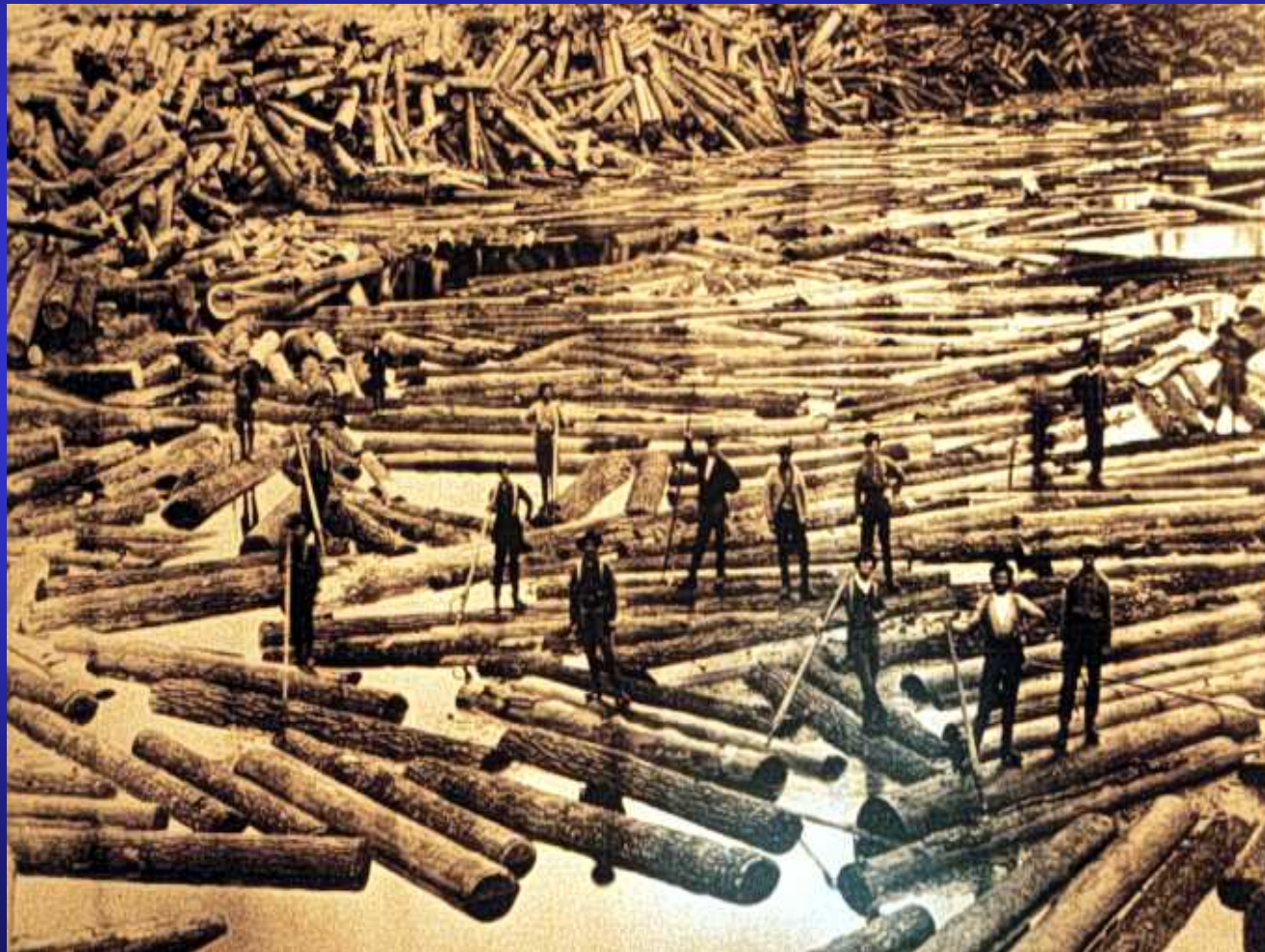


Fish Point, Saginaw Bay



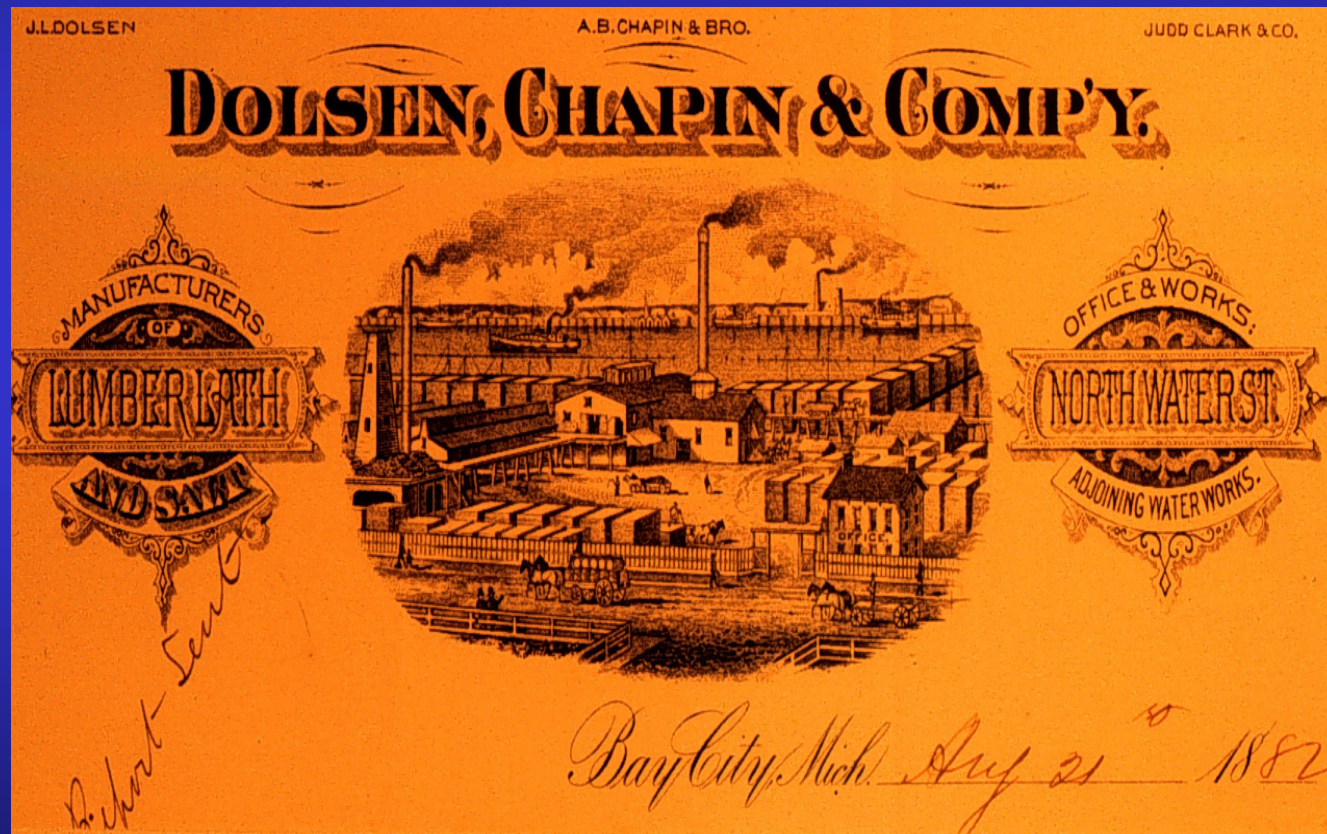
Michigan Natural Features Inventory

Intensive land management: logging of Saginaw Bay pinery



es Inventory

Lumber mills produce steam for salt extraction



First salt mine in Midland



Michigan Natural Features Inventory

Intensive development: Barrel works using local oak and ash



Salt and barrels allow for Saginaw Bay fishery exploitation

The Dormer Fish Co.
Wholesale Dealers in



**Fresh and Frozen
LAKE FISH**

Standing Orders Insure a More Regular Supply

Tel. Bell 1184 Valley 1827

Office and House: Foot Ottawa St., BAY CITY, WEST SIDE

Clearing of land and drainage followed by intensive agriculture



Michigan Natural Features Inventory

Intensive agriculture within Saginaw Bay watershed



Michigan Natural Features Inventory

Eastern prairie-fringed orchid

(*Platanthera leucophaea*)



drastic reduction
of habitat

Blazing star borer (*Papaipema beeriana*)

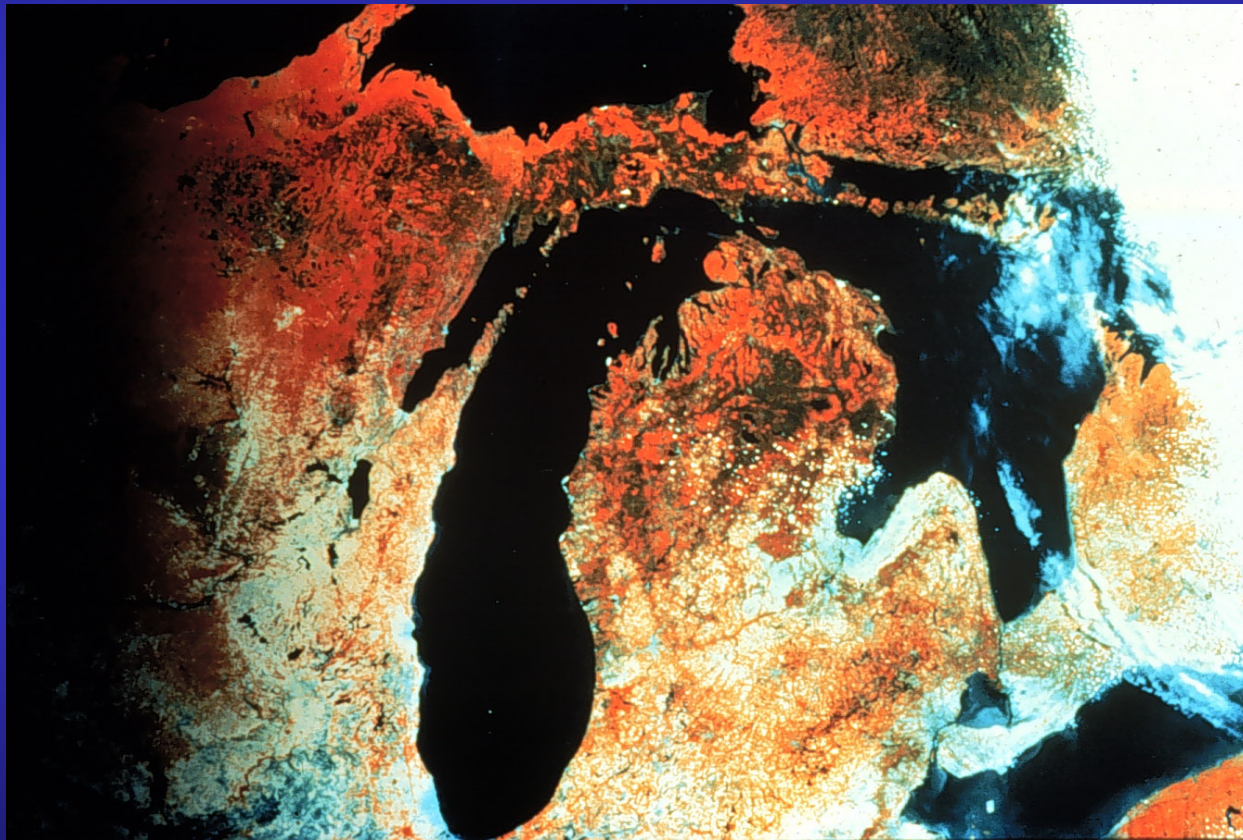


Ecosystem Restoration: Lakeplain Prairie



Michigan Natural Features Inventory

Questions?



Michigan Natural Features Inventory